Outdoors in Georgia

February 1979

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Outdoors in Georgia

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Outdoors in Georgia is the official monthly magazine of the **Georgia Department of Natural Resources, published at the Department's offices, Room 714, 270 Washington Street, Atlanta, Georgia 30334. Publication Number 217140.** No advertising accepted. Subscriptions are $5 for one year or $9 for three years. Gift subscriptions must be prepaid. Printed by Williams Printing Company, Atlanta, Georgia. Copyright 1979, **Outdoors in Georgia Magazine.** Contributions are welcome, but the editors assume no responsibility or liability for loss or damage of articles, photographs, or illustrations. Second-class postage paid at Atlanta, Georgia. 29,000 copies printed at an approximate cost of $15,000. **The Department of Natural Resources is an equal opportunity employer, and offers all persons the opportunity to compete and participate in each area of DNR employment regardless of race, color, sex, religion, national origin, age, physical or mental handicap or other non-merit factors.**

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ISSN 0147—720X

Outdoor Commentary

Winter Happenings

DNR's Parks, Recreation and Historic Sites Division offers a variety of special events and programs throughout the year (even during the winter) at the state's 43 parks and 11 historic sites. One of the most interesting—and most popular—is the Fireside Craft/Art Show held each February at Unicoi State Park's Lodge and Conference Center. This year's show, set for February 17-18, will bring together about fifty of the Southeast's most creative artisans. Of course, anyone familiar with the show knows that this is nothing unusual. Now in its fourth year, Unicoi's arts and crafts bonanza continues to attract thousands, and for a very good reason.

In addition to a variety of paintings, sketches, macrame, pottery, quilting, stained glass and handmade dolls, visitors to the show can see and buy some most unusual craft items. The craft demonstrations ongoing during both days of the event are sure to intrigue you, and, true to the billing of the event, there'll be a roaring fire in the lodge's big fireplace to warm you.

Unicoi is one of the state's most popular and best-known state parks. Nestled in the mountains above Helen, the park is literally jammed with sightseers during the fall when north Georgia's leaves are at their most colorful. But in winter, the park can be a quiet getaway retreat, especially when blanketed by the white of an overnight snowfall. Unicoi has plenty of facilities for overnighters: 102 campsites for the hardy; 20 fully furnished cabins, complete with fireplaces; and a 60-room lodge with a beautiful view, warm fireplaces and lots of good food.

Unicoi is located on Highway 356, just north of Helen. Make your plans now so you won't miss the Fireside Craft/Art Show, February 17-18. Hours for the show are from 10 until 6 both Saturday and Sunday. There is no charge.

A couple of other special events need to be mentioned now, too, so you can plan ahead. The first weekend in March (March 2-3), Unicoi will be the site of a turkey hunting workshop. Experts will be on hand to teach and discuss hunting skills and techniques, including turkey calling, as well as turkey management. And parks personnel are urging interested people to pre-register for the Spring Orienteering Meet, scheduled for March 24-25 at F. D. Roosevelt State Park near Pine Mountain. Registration is $1. Call (404) 656-7092 to reserve your place. The "Wintertime at Fort Mountain" Photo Contest runs from February 15 to March 15. For registration and more information, call or send self-addressed, stamped envelope to Fort Mountain State Park, Chatsworth 30705. (404) 695-2621.

For more information about scheduled events or about any state park or historic site in Georgia, call (404) 656-3530.

Susan Hood

Rice

& the Culture of Coastal Georgia

by Lucy Justus

Paintings by Alice R. H. Smith
Courtesy Gibbs Art Gallery,
Charleston, South Carolina.
Photos courtesy
Georgia Department of Archives and History,
Vanishing Georgia Collection.

It is 1790 and close of day on the Georgia coast.

The plantation looks like the small, self-sufficient village it is. Along with the manor house, there are barns, stables, smokehouses, chicken houses, a plantation hospital, a commissary, slave cabins, blacksmith, carpenter, cooper's and tanner's shops, cotton gins, and rice and sugar mills.

In the yard, exotic flowers bloom among the magnolias and liveoaks and the orchard includes date palms and orange, lemon and olive trees.

The family and guests have changed to formal clothes, have had drinks in the drawing room and are now assembling in the dining room where the hospitality is superb and the service elegant.

Large numbers of guests are common—neighbors, friends, relatives from the American states, England, Scotland. Many are distinguished: government officials, scientists, teachers, writers, actors and artists.

Because of the variety of food and the numerous visitors to her house, the hostess owns meat platters in at least five sizes and vegetable bowls as big as tureens. On the table, candlelight flickers on fine china, crystal and silver. The menu includes soup, oysters, ham, turkey, beef, vegetables, three desserts and an assortment of wines.

When the last course is finished, the ladies withdraw leaving the gentlemen to cigars, additional wine and men-talk. The women, of course, settle down to their own discussions until the men rejoin them. The evening's conversation may deal with politics, fashion, literature, art, music, a son's progress at a northern university or a European one, the efficiency of a daughter's governess, and a number of other things. But among the men, at least, the talk eventually turns to the current crop of rice.

Rice had done for coastal Georgia what cotton was later to do for inland Georgia. It had paid for the silver, china and crystal, the lavish hospitality, the elegant clothes, the expensive educations for the children, and summer homes on the seashore.

It had, in fact, quickly changed a struggling, rag-tag settlement into a prosperous one. Rice had provided the leisure and financial means through which education, recreation and the cultural arts could develop. It also brought "inequality" to early Georgia, creating a society with distinct levels, and levels within levels.

Under the rule of the Trustees, immigrants who came at the expense of the Trust were allotted only 50 acres of land per family and it was illegal to consolidate the holdings. A few wealthy men were given 500-acre tracts, but in the beginning, the colonists were essentially small farmers on whom an artificial equality was imposed. And slavery was prohibited.

The Trustees had expected silk to be Georgia's money-maker. Great Britain, hoping to free herself of the need to buy silk from other nations, had promoted its production in Georgia. England bought Georgia silk at one shilling, six pence a pound—although the going rate was a shilling or less—and paid preparation and shipping costs. And the Society to Encourage Arts, Manufacture and Commerce offered premiums of three, five and ten pounds to the persons planting and caring for the greatest number of mulberry trees.

But Georgia's climate was ill-suited to silk culture and labor was scarce and unskilled. The colonists had trouble not only in producing silk but in raising adequate food for themselves. They survived mainly on shiploads of imported food. Silk was a loser just as vineyards for the production of wine also proved to be.

Then, at various times within a few years, three important things happened: rice was introduced, the ban against slavery was lifted and the restriction on allotted acreage was abolished. The day of the great plantations had dawned.

The coast had in abundance all the requirements for the cultivation of rice, including, under slavery, ample labor. And the crop succeeded almost immediately. Beginning on a relatively small scale in the Savannah area, rice planting quickly spread to the coastal islands and inland along the major rivers.

During the first 18 years of the colony, only one vessel loaded with Georgia products had left the coast. In 1761, 45 ships sailed with Georgia commodities. By 1772, the number had increased to 161 from Sa-

vannah and 56 from Sunbury. By that year, James Habersham, one of the first major rice planters, had an annual income of about $10,000.

Of the $500,000 worth of products Georgia was exporting annually, many things went to England, including rice, indigo, naval stores and deer skins. Rice, corn, peas, lumber, shingles, cattle, horses, beef and pork were sent to the West Indies. The colonists received wearing apparel, ironware, tea and paper from England; rum and sugar from the West Indies; and flour, crackers and other foodstuffs from the northern colonies.

Slave labor, of course, made the great plantations possible. After the introduction of slavery in 1749, the population increased rapidly and every year the proportion of blacks to whites became larger. By 1772, there were 15,000 Negroes and 18,000 whites.

Estates ranged from a few hundred acres to more than 25,000, divided into several plantations. Some historians say that at no subsequent period in Georgia history did individuals conduct planting on a larger scale than did the rice growers. And agriculture was more diversified before the Revolution than after the rise of cotton.

In coming years, the boll weevil and other pests would arrive to plague planters. Meanwhile, the rice growers had their own specialized problems. One was the rice birds which came in enormous flocks and could quickly destroy a crop. Hurricanes were another major hazard. If, through the effects of a storm, a field were flooded with salt water, several years often had to pass before the field would again produce rice. The life of a major planter was not entirely one of ease. Rice growing was a risky business in which a plantation owner could be bankrupted within a matter of hours.

Obviously only a few original settlers, with only 50 acres, could afford the land and slaves necessary to become large plantation owners. Many who could not, sold their holdings and moved to the frontier where they continued to engage in small-scale farming, grazing and cattle raising. Thus the greatest number of rice plantations consisted of a few hundred acres and a modest frame house. And some of the first settlers became plantation laborers. The levels of society had formed: the elite, the middle class, the laborers and the slaves.

* * *

Midnight in the slave quarters, a group of cabins built along a "street" some distance from the plantation house. A child is sick and feverish. The wife of the plantation owner sits by the bedside bathing the patient's face and administering medicine as the child's mother relaxes nearby.

The child had been born in the plantation "hospital," delivered by the owner's wife and a female slave assigned to care for the sick.

But, previously, when the child's parents had been married, the wedding ceremony did not include the words "til death do us part." Things other than death could separate slave husband and wife. One, or both, might be sold, never seeing other members of the family again. Some ceremonies used "til death or distance do us part."

In the slave quarters, house servants considered themselves elite, a cut above the field hands, but they had much in common, not all of it pleasant.

By law, no slave could leave a plantation, however briefly or whatever the reason, without a written permit from the owner. If caught without a permit, he was likely to be whipped. Willfully destroying a stack of rice, corn or other grain or maliciously setting fire to a tar kiln, barrel of rice, turpentine, tar or resin was punishable by death. The death penalty was also imposed for killing a white person, attempting to raise an insurrection or enticing a fellow slave to run away. Slaves could not carry weapons during the week without the written consent of the owner and under no circumstances between Saturday evening and Monday morning. Anyone who sold alcoholic beverages to a slave was liable to a fine.

It was also illegal to teach slaves to write, but some owners ignored that segment of the law, providing

Painting by Alice R. H. Smith, courtesy Gibbs Art Gallery

simple education as they provided religious instruction, food, clothing and care for the sick.

Parts of the law were designed to protect the slaves. They were legally exempt from working more than 16 hours a day and from any work on Sunday except for domestic service and tasks of absolute necessity. Owners who failed to provide sufficient food and clothing were subject to a fine.

On some plantations, the hours were short, the food plentiful and the relationship between master and slave reminiscent of that between European feudal lords and their retainers. In the 1840s, Sir Charles Lydell, president of the Geological Society of London, was a guest of James Hamilton Couper at Hopeton, a rice plantation with 500 slaves. Sir Charles wrote:

"The children have no regular work until ten or twelve years old when they are set to raking up dead leaves from the paths and sweeping the drives.

"The laborers begin work at six o'clock in the morning, have an hour's rest at nine for breakfast, and many have finished their assigned task by two o'clock, all by three. In summer they go to bed in the middle of the day, then rise to finish their tasks and afterward spend a great part of the night in chatting, merrymaking, preaching and psalm singing.

"Rations allowed the slaves are more than they can eat and they are allowed to return part to the overseer for an allowance of money or keep it to feed their fowls which they sell, as well as the eggs, to buy tobacco and other luxuries. When they get through the day's tasks early they fish and sell their catch. Some employ their spare time making canoes out of large cypress trees, leave being readily granted them to use the trees, as it helps clear the swamps. The canoes are sold for about $4 for their own profit."

However, there were stories, many no doubt true, of overworked and underfed slaves, beatings and other cruelties. Fanny Kemble, a British actress, married rice-planter Pierce Butler who owned Butler's Island. Mrs. Kemble, as she was called, was horrified by slavery and believed, in her words, that slaves suffered agonies worse than those of Dante's "Inferno."

Early morning. The workers are in the fields and already the sun is hot. In past months, the hands have worked hard at preparing the land for cultivation.

Beginning with a wilderness, they have constructed a levee around some 500 acres, cleared the trees and underbrush, and leveled the land. They have dug a ditch—five feet deep and five feet wide—about 20 feet inside the levee and installed floodgates in the levee.

They have divided the enclosed area into fields of 10 to 20 acres and the fields into one-acre segments, separating each by a ditch four feet deep and four feet wide. Then they have dug quarter-drains, three feet deep and 16 to 24 inches wide, leading into the one-acre segments and installed trunks in the larger ditches to control the flow to individual fields.

During the winter, the slaves have plowed and harrowed the land, cleaned the ditches and laid off the fields in rows or trenches, 13 inches from center to center. In March or April, they had sowed the rice, two-and-a-half to three bushels of seed to the acre. The fields had been inundated and the floating trash raked off and burned. After the seeds had germinated, the fields had been drained and left dry until the rice was about an inch and a half high. Then the fields had been flooded again until the rice was about five inches high and drained again.

It is now time for hoeing—broiling, back-breaking work with a six-inch hoe. The women work alongside the men. In about 12 days, it will be hoed again, flooded again and the trash raked again. After two or three weeks, if grass persists underwater, it may be pulled out by hand. The field will be drained, hoed twice again and reflooded until harvest time when it will be drained and the rice cut with a sickle or rice hook. Then comes threshing, winnowing and milling.

It is grueling, monotonous work and the life of a slave holds little hope of improvement. Like most tasks, chopping and pulling grass from the rice fields seems less dull and difficult when done to the rhythm of music. The slaves provide their own—songs about the plantation, its owners, food, pastimes and, frequently, spirituals of prayer and inspiration:

"Somebody needs you, Lord, kum ba ya, kum ba ya . . . ."

"Swing low, sweet chariot, comin' for to carry me home . . . ."

Few owners live on their plantations during the summer months when the rice fields are underwater. There is a "miasma" which brings chills, fever and death to white people although apparently the slaves have some immunity. During the dangerous months, the plantation owners move with their families to houses in the cities or on the seashore or sand ridges, leaving the fields to the slaves and overseers, and occasionally paying brief visits when necessary.

But moving does not assure safety. Some years, waves of the "miasma" —later identified as malaria and yellow fever—kill scores of people in Savannah and other areas.

It will be several years before the miasma is properly attributed to the mosquito, but as early as 1802, Joshua White, a Wayne County physician, maintained that a yellow fever epidemic there was related to standing water. He believed the epidemic resulted from the putrefaction of organic debris in ponds.

In 1806, White, then practicing in Savannah, read to the Georgia Medical Society a report associating yellow fever with swampy areas and rice fields. As a result, the Medical Society appointed a committee to investigate "the injurious consequences which result to the inhabitants of Savannah from the cultivation of the contiguous low country in rice." The committee reported that yellow fever did not invade the area until the rice fields were created and recommended abandoning rice as a crop.

In 1823, the Georgia Medical Society refused to sanction the wet cultivation of rice, favoring the production of "upland" rice which could be grown without the constant inundation and standing water. In 1829, the legislature passed a law forbidding the wet culture of rice within two miles of Savannah and a city ordinance endorsed the law. Within a short time, Savannah was virtually free of the "miasma" which had haunted the area for years.

Rice growing continued in Georgia for almost 100 years despite the rise of the cotton industry and the major set-back of the Civil War. Rice cultivation in the state died out in the early 1900s, the final blow dealt by growing competition from Texas, Arkansas and Louisiana where rice planters could use heavy machinery unsuitable to Georgia soils.

By then, of course, the era of the great plantations and their way of life had also died.

As somebody aptly observed, "Cotton was king, but first, rice was queen."

James Troup Dent, c. 1914

Hofwyl-Broadfield. One of the early rice plantations along the Altamaha River. The Broughton Island tract was originally granted to General Henry Laurens in 1760 and sold, after his death, to William Brailsford of South Carolina. The plantation acreage grew and shifted and then passed down through a succession of family members including Dr. James Troup, brother of Georgia governor George M. Troup. Two sisters, Misses Miriam and Ophelia Dent, were the last of the line.

When Ophelia Dent died in 1973, the Hofwyl-Broadfield plantation became the property of the state through her will. Miss Dent left more than 1,000 acres to the Nature Conservancy with the stipulation that the Conservancy convey the property to the state or some other agency which would preserve the plantation and perpetuate its historical significance.

Churning Butter, c. 1910

Although the earlier plantation house burned and the boundaries of the property changed through the years, the site now includes the Dent home, believed to have been built as a caretaker's house in 1851, the servants' quarters, the commissary, the ruins of a rice mill and some of the original rice fields and dikes.

Rice was grown at Hofwyl-Broadfield until about 1912 when the plantation became a dairy farm, supplying milk to two counties. The dairy barn and creamery remain at Hofwyl.

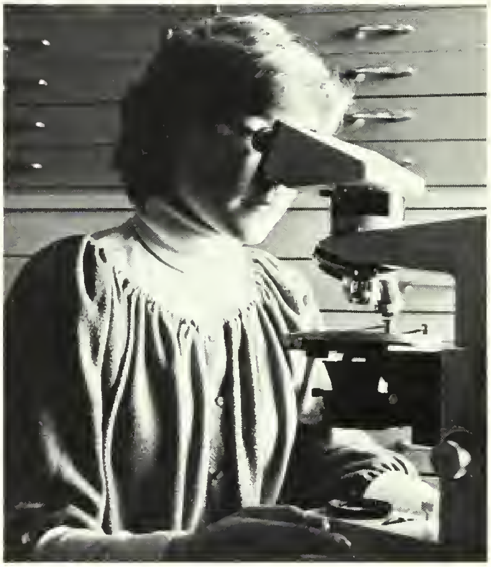
Now under development, the plantation will be opened to the general public, probably within the next two years, but it will not be restored as an antebellum rice plantation. It will be preserved as Miss Dent left it in 1973, reflecting the evolution of the plantation from its days of glory through its lean times and its adaptation to a changing world.

Only by adapting did Hofwyl-Broadfield remain alive after many of the other plantations had died. ●

Carrying Rice, c. 1910

THIN SECTIONS

BY LUCY JUSTUS



If you have ever picked up an ordinary rock and tossed it aside thinking it worthless, you were wrong.

The common rock is one of the most important things on earth and contains some of the world's most striking beauty.

Drab, ordinary, everyday rocks. Some eroded and weathered into soil; some solid, strong, little affected by millions of centuries of wind, rain, heat and cold; some porous, cavernous, nature's storehouses; some broken, faulted, folded by tremendous forces within the earth. These rocks determine where crops grow, where cities are built, where roads run and rivers flow, where groundwater and valuable minerals are found.

Chunks of marble, granite, gneiss, sandstone, limestone, quartzite. As unimpressive as they seem, they are pages from one of nature's most exquisitely written ledgers, revealing to the trained eye much about the history of the earth and its formation. And they contain colors, patterns, textures and symmetry an artist might envy.

The photographs on these pages, which might have been made in a gallery of abstract art, are microscopic views of the everyday rocks found in field, forest, stream, street or yard. The rocks are sliced into transparent slivers called thin sections which are so thin that this type could easily be read through a section of granite. They are only 3/100 mm thick.

The segments of color are mineral crystals which make up the rock, given fire and life by the polarized light of a petrographic microscope. When thin sections are cut precisely to 0.03 mm, each mineral has a predictable variation of color which serves as one key to identification. Mineral colors range from white through various shades of red, blue, yellow, purple, green, gray, black and brown.

Some 1,700 different minerals are recognized. And, although only a comparatively small number are commonly found in rocks, identification is not always easy. Several factors, including relief and cleavage—the directions along which the crystals are split—are helpful in identifying the minerals.

Additionally, under natural conditions, every chemical compound crystallizes in a distinct, recognizable shape, but shape alone does not tell the observer what the mineral is. Frequently after a mineral has crystallized, it reacts with substances in the rock and recrystallizes into an entirely different mineral, retaining its original shape but acquiring a new chemical composition. Such minerals are called pseudomorphs, and while they can be confusing, they tell a great deal about the history of the rock.

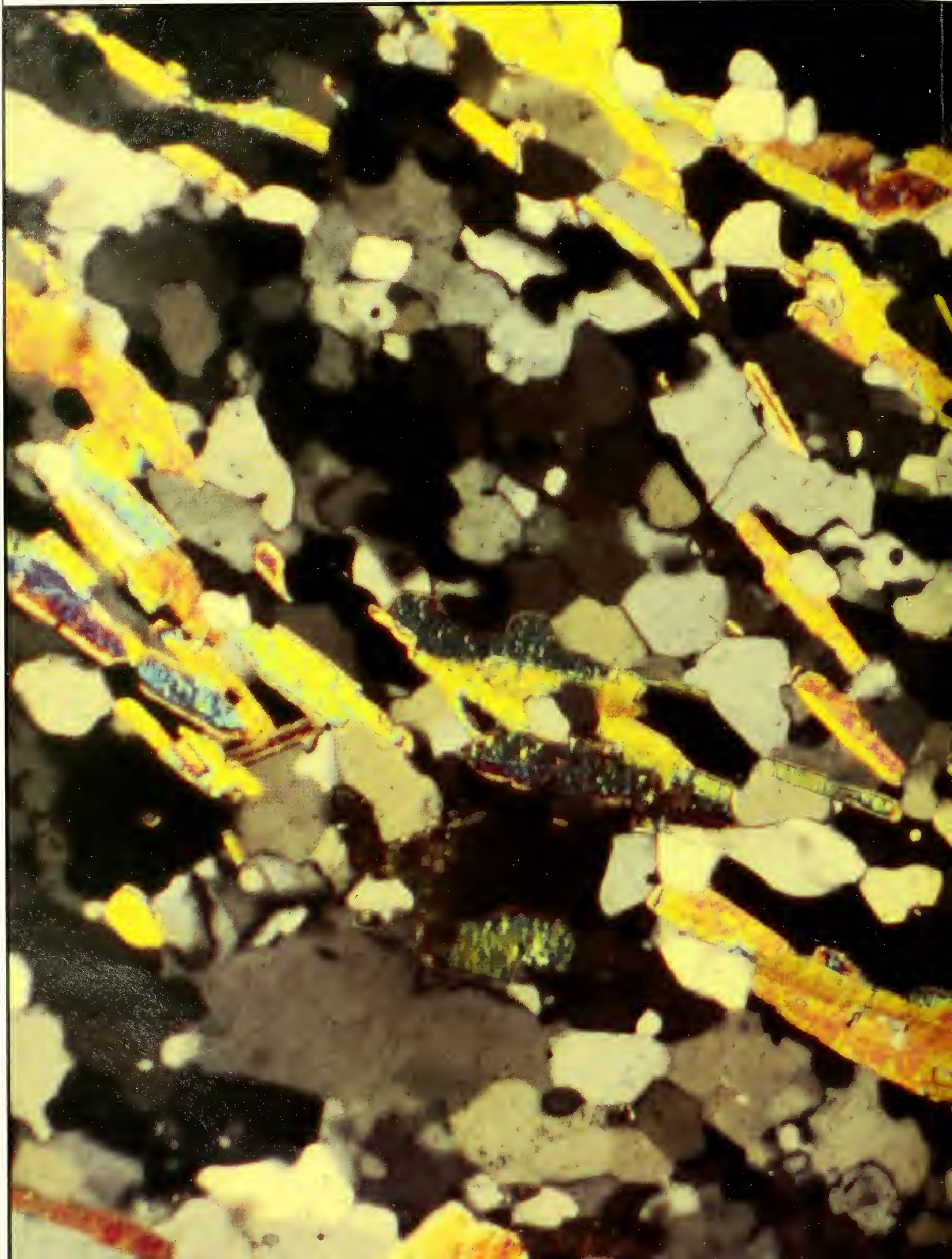
Interestingly, precious stones, such as rubies, diamonds and emeralds, yield most of their beauty to the casual glance. In thin section they reveal no blazing colors and few fascinating shapes and textures to intrigue those who search for knowledge or hidden beauty. To the scientist, shapes, colors and textures are invaluable tools of his profession. Consequently, precious gems tell him little he needs to know in his work-a-day effort to understand the world and its resources.

Conversely, thin sections of common rocks are as useful as they are spectacular. In almost any professional task a geologist undertakes, his first step is to learn the composition and history of the rock he is dealing with.

Thin sections tell him the minerals present in the rock, its chemical composition and something of its history—the degree of faulting, folding, recrystallization,

Photos by Sam Pickering

Large Photo: Anthophyllite asbestos
Small Photo: Altered ultramafic



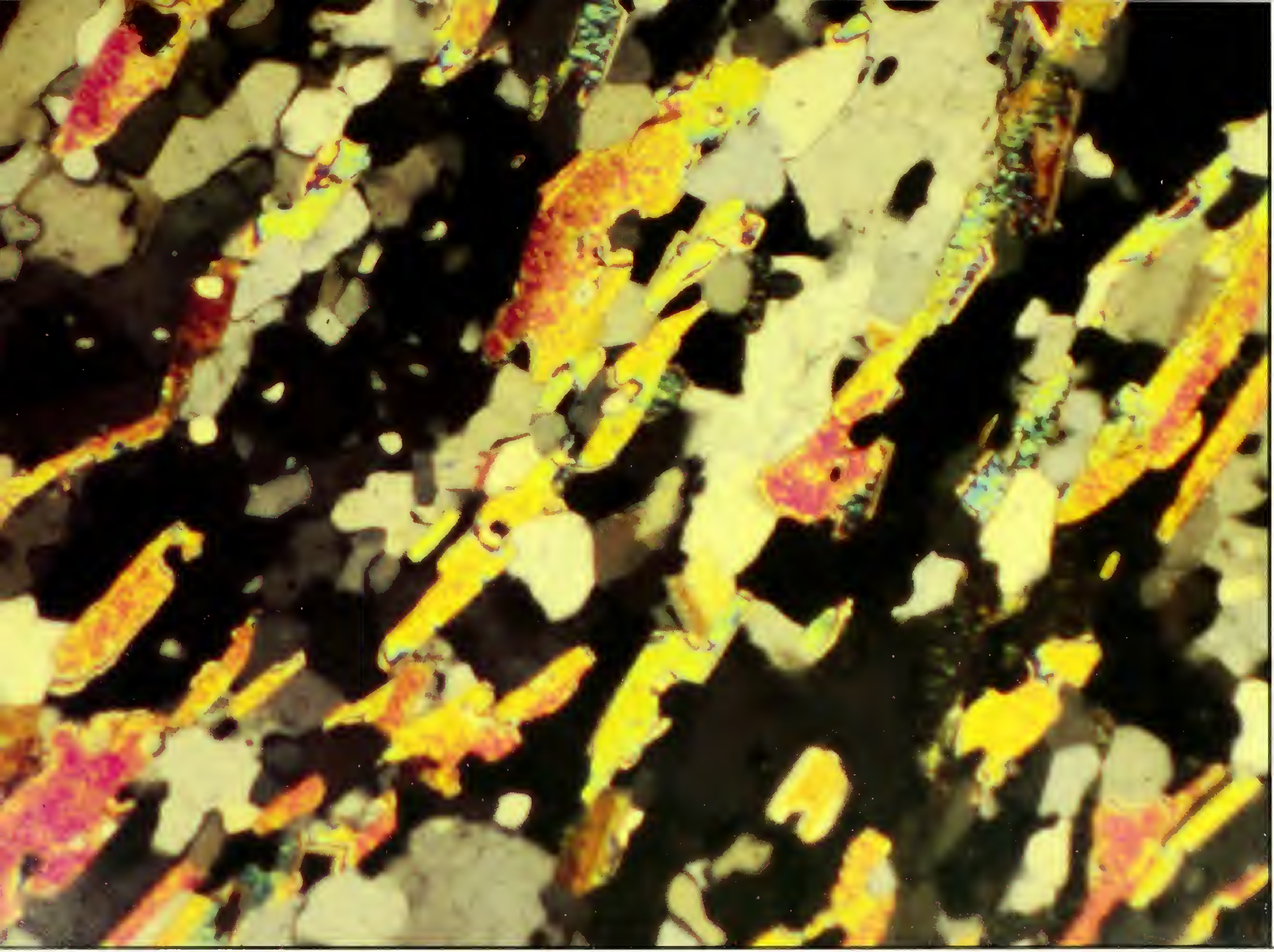


Photo: Biotite gneiss

weathering and alteration it has undergone since its formation. By observing which crystals have pushed others aside, broken or penetrated them, he often learns the order in which the minerals crystallized.

Thin sections help the geologist predict where groundwater, petroleum and valuable minerals may be found. In some cases, they serve as natural maps, indicating where a vein of ore, depleted in one place, may appear in abundance in another.

They can be used to determine whether a rock is suitable as an aggregate in concrete or whether it would react with the concrete, break down and cause structural failure . . . whether a rock has been so weathered along fractures that it would be unstable as a building foundation . . . whether a rock has enough pore space to be a good aquifer . . . whether there are soluble minerals which would degrade groundwater quality . . . whether the rock is a likely reservoir for petroleum. . . .

The slivers of stone are also the geologist's guide to accuracy when he maps a particular body of rock over tens or hundreds of miles. To assure that he is not tracing a similar but different rock, he collects samples along the way. In thin section, the samples tell him if the rock has the same composition and was formed under the same conditions as the original.

Thousands of thin sections, collected and studied by many geologists, were used in preparing the 1976 geologic map of Georgia, the most accurate and comprehensive of its kind the state has ever produced.

Since no two thin sections are alike, the geologist never knows what he is going to see when he looks at one. He may find waves of rainbow colors etched in the rock hundreds of millions of years ago. There may be mosaics of geometric shapes or impressionistic views of frozen rivers, flaming fountains or showers or meteorites. Such things are clues to the history of the rock.

Perhaps a thin section contains a garnet resembling a pinwheel. The effect would tell the educated observer that the garnet was crystallized while the parent rock underwent slow, very powerful movement causing the garnet to roll like a ball, picking up particles in the process.

Thin sections may contain a variety of clues to a variety of things. Since the same mineral assemblages are often grouped together, the presence of one mineral frequently suggests the presence of another. Olivine, for instance, is commonly found with pyroxene; tourmaline with mica; pyrite with chalcopyrite; and kyanite with saturolite. Asbestos, chromite (the source of chromium) and garnierite (the major ore of nickel) often occur with hornblende, pyroxene and olivine-rich rock.

Other minerals, such as olivine and quartz, almost never appear together.

The type of rock provides only general clues to the minerals it contains. Gold occurs in veins of quartz, uranium in granites and barite in limestone, dolomite or shale. But not all quartz veins are laden with gold, nor granites with uranium, nor limestone with barite.

When valuable minerals are present, microscopic examination of thin sections helps the geologist evaluate the mining potential of the area and the best locations for prospecting. From thin sections, he may discover that ore minerals are implaced along a series of veins or fractures associated with a particular type of fold. That fold, or group of folds, may then become the site of a mining operation.

Although thin sections reveal much about the history of the earth, recording its great upheavals and subtle changes, they do not indicate the age of the rock. Even when a scientist knows the age of crystals within the stone, he may not know the age of the parent, because the crystals may have developed long after the rock was solidified. Studies of individual lead sulfide crystals show that some have grown over a period of 400 million years.

Once the entire surface of the earth was barren rock. Then came the rains, the winds, the blazing heat of the sun, the ice of the glacial ages and the years between, and the rising and falling of the seas. Records of all of that, and more, are inscribed beautifully, scientifically, artistically in the drab little rocks most people never notice. ●

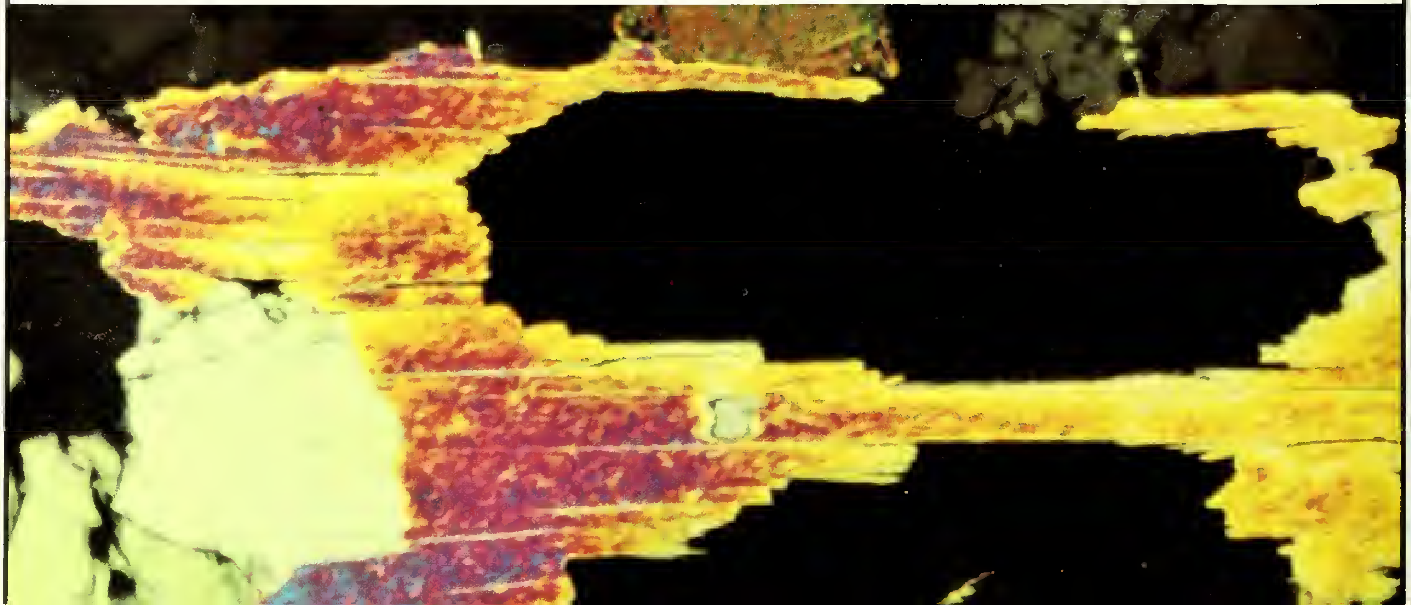
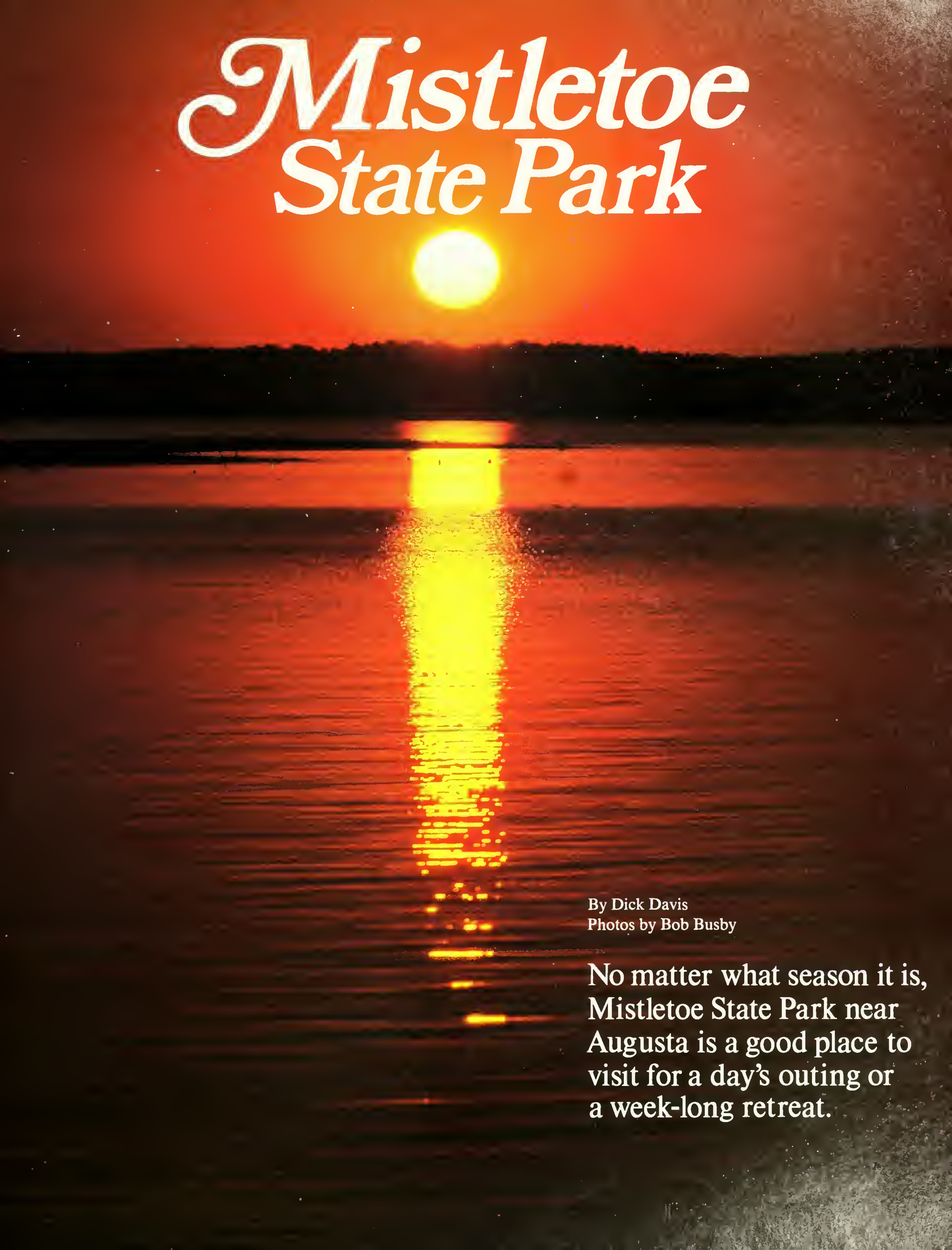


Photo: Muscovite mica in pegmatite

Mistletoe State Park



By Dick Davis
Photos by Bob Busby

No matter what season it is, Mistletoe State Park near Augusta is a good place to visit for a day's outing or a week-long retreat.

A cooling, pleasant breeze wafts in from the lake. A brilliant sun dances on Clark Hill's waters, and you relax at your vantage point, a campsite overlooking the cove. Boating, swimming, fishing, hiking, picnicking or other diversions are at your pleasure.

Or you're sitting restfully on the porch of your air conditioned, fully furnished cottage overlooking the cove at Clark Hill Lake. Months ago you reserved your cottage at Mistletoe State Park and now you're enjoying every minute of your stay.

Or it's wintertime in east Georgia, and a cozy lakeside cottage at Mistletoe Park provides the setting for a cold weather vacation. There are still fishing, hiking and other outdoor activities for the warmer midday hours, and a cheery blaze to make the fireplace the center for the evening's relaxation and fellowship.

Mistletoe State Park—a park for all seasons.

Nestled on the southern shore of Clark Hill Reservoir in eastern Georgia's Columbia County, Mistletoe Park's 1,920 acres provide a variety of outdoor recreation for a vacation of two weeks, a long weekend, or even just a day's outing.

In a setting of picture-book scenery, the park affords access to 78,000-acre Clark Hill Reservoir. You can enjoy a variety of activities in this water playground: swimming, fishing, power boating, sailing and water skiing.

The park derives its name from nearby Mistletoe Junction, for generations an area of profuse mistletoe growth. Strategically located as the park is, on Clark Hill Reservoir and near Augusta, Superintendent David Hansen and his staff each year host a number of visitors who use the park's cottages and other facilities while sightseeing in this area of Georgia or attending the prestigious Masters Golf Tournament.

Check the roster of campers almost any summer weekend at the park and it will include those from various counties in Georgia as well as from out-of-state. There are 107 combination tent and trailer rental sites, most with water and electrical hookup, picnic table and grill. Comfort stations provide hot showers, flush toilets and an automatic laundry. Campsites are rented on a first-come, first-served basis; advance reservations are not accepted.

A unique feature at Mistletoe is a wildlife observation area which has a tower from which wildlife, including deer, can be observed in their natural habitat.

Swimming in the lake water is, of course, popular at Mistletoe. A white sand beach and bathhouse provide needed facilities, and a playground is located nearby.

A delightful nature trail begins at the park office and winds through a variety of forest types, with trees and other flora permanently marked for identification.

A large screened group shelter overlooks the lake and provides excellent facilities which can be rented for large gatherings. The shelter has a barbecue pit, stove, refrigerator, sink, restrooms, and tables and chairs for 160 guests. The shelter must be reserved in advance. Individual picnic sites are available throughout the park.

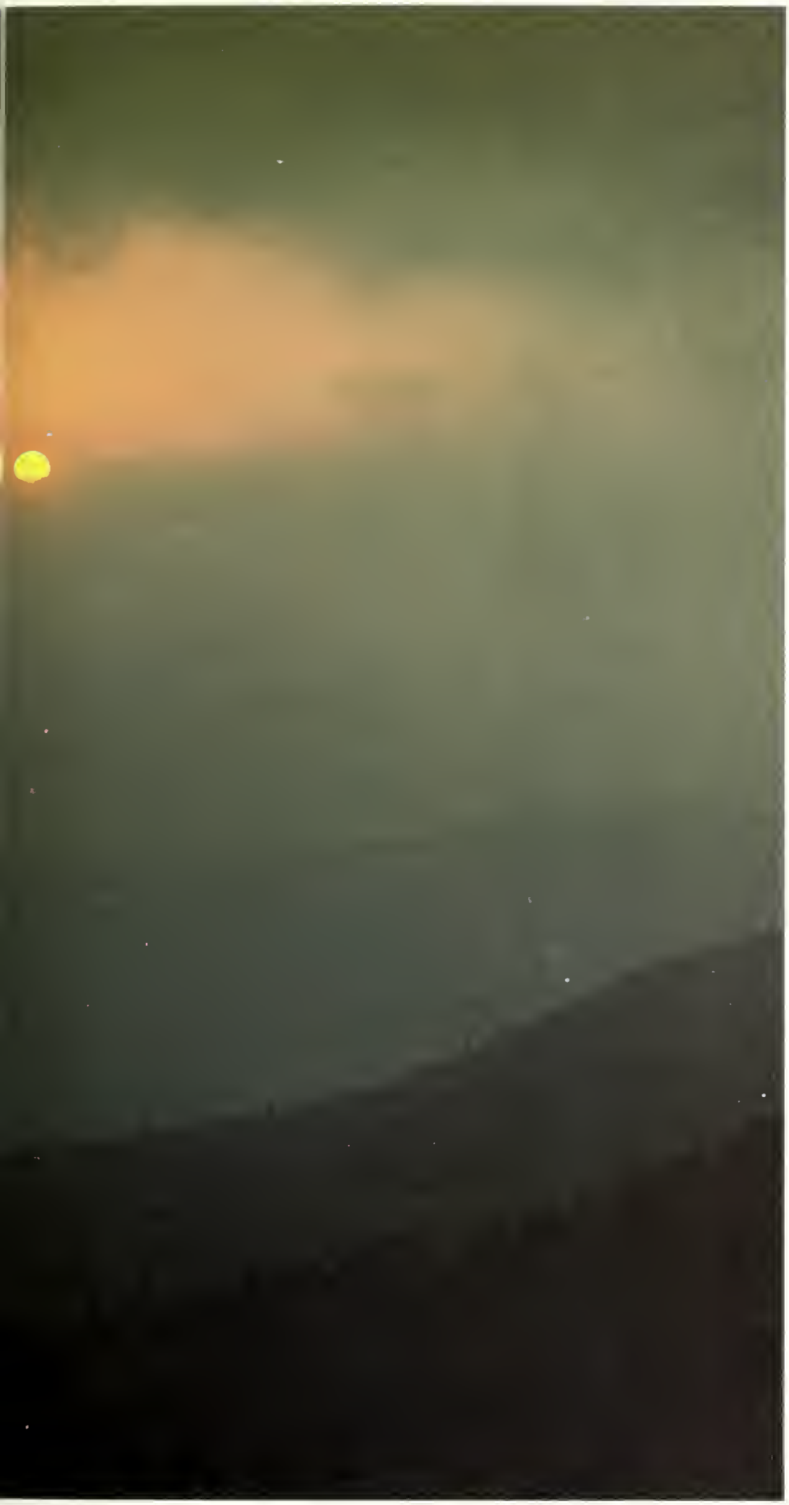
The boat ramp and dock at Mistletoe Park are in almost continual use during favorable weather, as owners bring their crafts to launch for pleasure boating, fishing and skiing.

Organized youth groups utilize the Pioneer Camping Area, which is set apart from other activity areas in the park. The area is available without charge to organizations such as the Boy Scouts and Girl Scouts; prior reservations are necessary.

You can reach Mistletoe State Park from Interstate Highway 20 by taking Exit No. 60 and proceeding 12 miles north.

Mistletoe—a park for all seasons. The water, the woods and fun are waiting. Better try it—whatever time of year. ●

Mountain



Trails

Hiking the Chattahoochee National Forest

By Teressa Moen
Photos by George Owen

Backpacking as a hobby is growing in leaps and bounds. An early proponent of the sport, Bob Marshall, gave an indication as to the reasons why when he said, "For me, and for thousands with similar inclinations, the most important passion of life is the overpowering desire to escape periodically from the clutches of a mechanistic civilization. To us, the enjoyment of solitude, complete independence and the beauty of undefiled panoramas is absolutely essential to happiness."

For people like Marshall (and there are thousands in Georgia if letters to the USFS requesting hiking information are any indication) Chattahoochee National Forest trails offer a world of variety. Here you can find trails suitable for a day's hike, for an overnight or weekend getaway trip, or for the challenge of spending several days alone in a wild setting.

Georgia has a lot to offer a backpacker: a spring, summer and fall of seasonable hiking weather, abundant water supplies in most areas and easy accessibility. Most trails are located less than a day's drive from any point in Georgia.

One particularly well-developed trail system in the Chattahoochee

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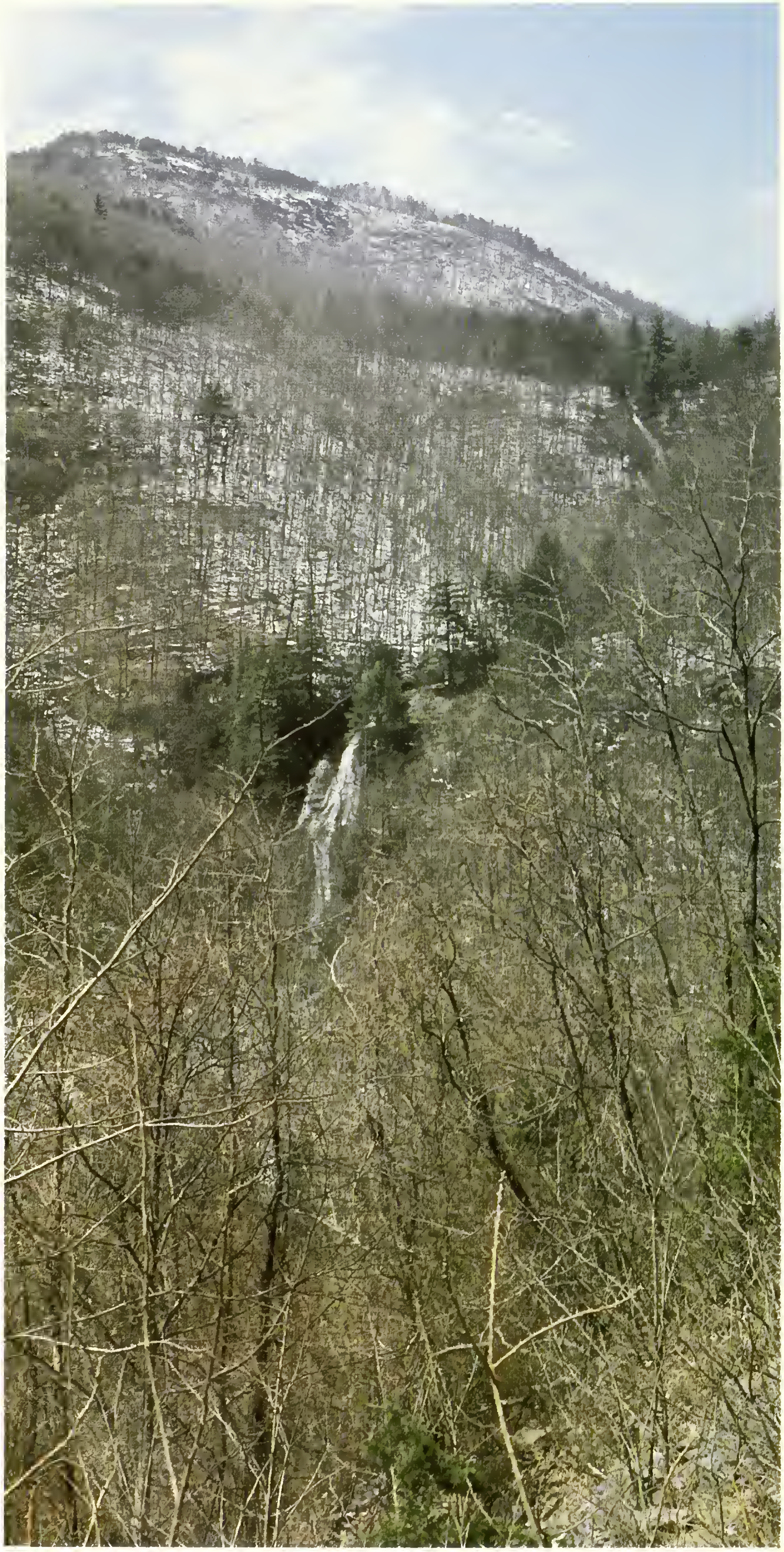
Teresa Moen is an information officer with the U.S. Forest Service, Chattahoochee National Forest, Gainesville. George Owen is a freelance photographer and hiking enthusiast.



National Forest is in the 34,500 acre Cohutta Wilderness in Georgia and Tennessee, the largest national forest wilderness east of the Mississippi River. In the Cohuttas, 18 trails totaling almost 75 miles weave atop ridges, through coves and along streams. Within this area, though, many of the easier or more accessible trails are becoming extremely crowded. If this overuse continues to cause damage to the wilderness, the Forest Service may find it necessary to begin a permit system. Permits would be free but would serve to limit the number of people allowed in certain areas of the wilderness. The Forest Service itself finds this type of regulation distasteful and emphasizes that because of the size of the Cohuttas, such regulation may be unnecessary if usage is spread more evenly.

Some of the trails in the Cohuttas merit special attention because of the nature of the trail or because of safety hazards to hikers or horses. The two river trails, the Jacks River (15 miles) and the Conasauga (5 miles) require frequent fording, so are dangerous during periods of high water or after a heavy rainfall. These two are also among the most heavily traveled. (The Beech Bottoms Trail is probably the most heavily used trail.) Other trails such as Horseshoe Bend Trail or the six-mile Rough Ridge Trail will offer more solitude to hikers. The Tearbritches Trail is aptly named as it descends 1600 feet in its three mile length from the wilderness boundary to the Conasauga River. Rough Ridge Trail and the two mile Hemptop Trail are also characterized by steep grades for long distances.

Horses are permitted on all wilderness trails except on six that offer extreme hazards for the horse's safety. These are the Conasauga River, Rough Ridge, Jacks River, Chestnut Lead, Panther Creek and Sugar Cove trails.

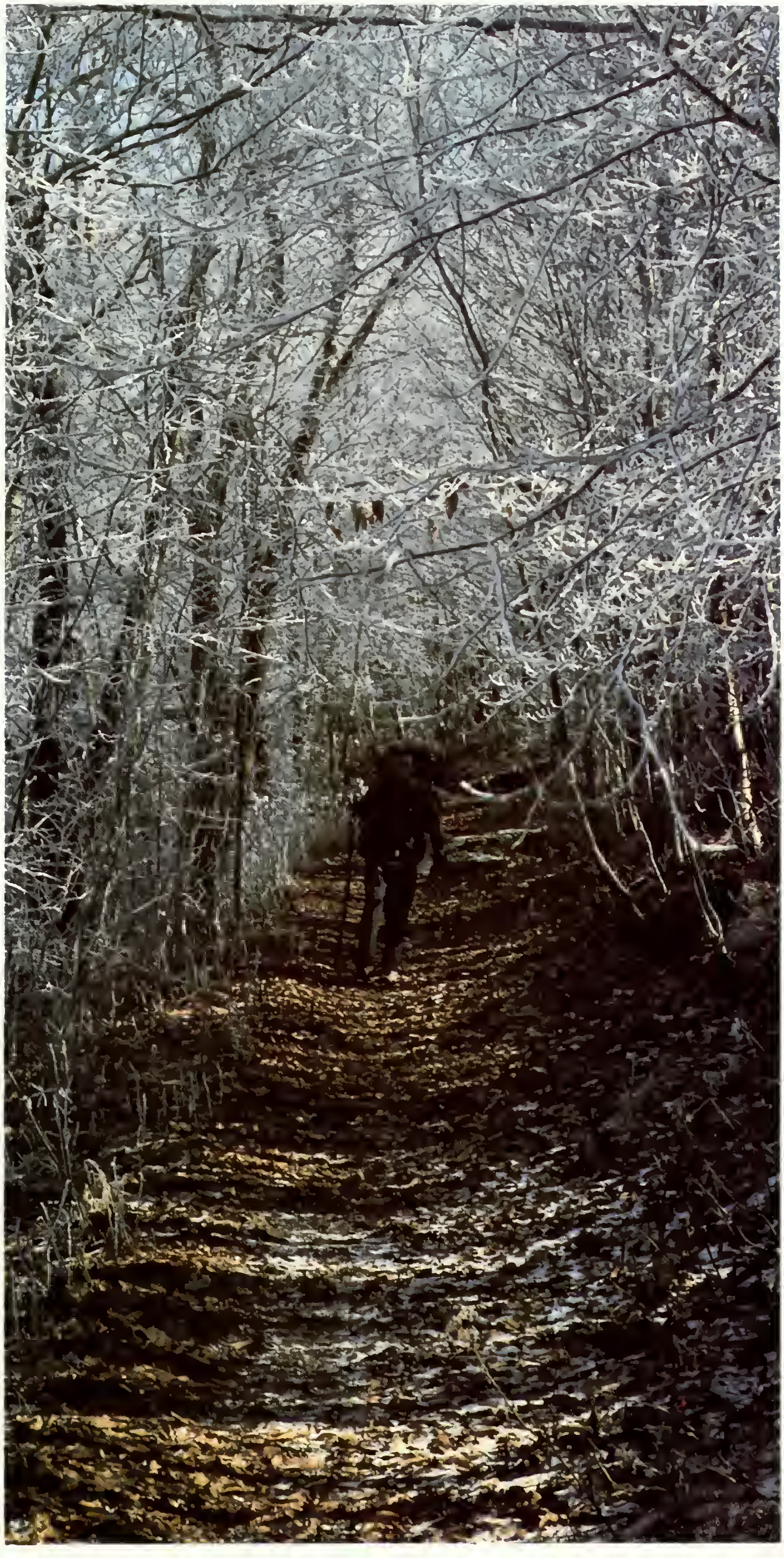
Although wilderness etiquette should be followed on every trail, it is law within the wilderness boundaries. No motorized vehicles or equipment are allowed, nor is cutting of live vegetation allowed. You won't find any developed campsites or fire rings and should leave no traces of your own. Don't carry anything into the wilderness that you can't carry out—no trash cans are provided except at the wilderness trailheads outside the boundary. And please, don't bury garbage; that is no longer an accepted woods practice.

A newly published tear- and water-resistant map of the Cohutta Wilderness is available for fifty cents from the Chattahoochee National Forest, 601 Broad Street, Gainesville 30501, or from the eight district offices of the Chattahoochee and Oconee National Forests. By using this map to carefully plan your hike, you can select a trip of some distance that will bring you back to your starting point without having to arrange for a second vehicle at your exit point. You can also plan a walk through a variety of vegetative zones and landscapes without ever having to retrace your steps.

Two other trails in the Cohutta area of the Chattahoochee National Forest, but outside the actual wilderness boundary, are also worth mentioning. The South Fork Trail is 2.7 miles long following the South Fork of the Jacks River from the Three Forks Road (Georgia 2) north to Elliott Road (FS 126-A). The Jacks River Fields, a popular primitive camping area, is at the lower end of the trail. The five mile Mountaintown Creek Trail follows an old woods road for most of its length. Heading south at Buddy Cove Gap on the Three Forks Road, it meets Crenshaw Branch and follows it to its intersection with Mountaintown Creek and on to Forest Service Road 90. Excellent sites for primitive camping are maintained at each end of the trail.

Don't forget that the entire Chattahoochee National Forest is open for hiking. If you really want to test your outdoor skills, forge your own path through the wilderness and experience the feel of camping in a spot known only to you. Of course, this type of hiking should be attempted only by the knowledgeable who have proper equipment and accurate maps.

(See Guidelines on next page.)



Guidelines

for Hiking and Camping

from the U.S. Forest Service

PERMITS

Permits are not required at present for hiking in the Chattahoochee National Forest. However, a free permit system could be implemented if overcrowded conditions occur in an area. If a permit system is instituted, hikers will be notified by signs at trailheads and other access points.

CAMPING

Camping and hiking are permitted anywhere in the national forests in Georgia except where posted otherwise. No permits or registrations are required at present except in developed recreation areas where fees are charged. All campsites are available on a first come-first served basis.

WINTER HIKING

Winter hiking can be fun but is only for experienced backpackers who keep informed of changing weather conditions and have the proper equipment. Even though the weather may seem quite mild at lower elevations, on the ridges temperatures often plunge below zero when computed with the wind chill index.

CAMPFIRES

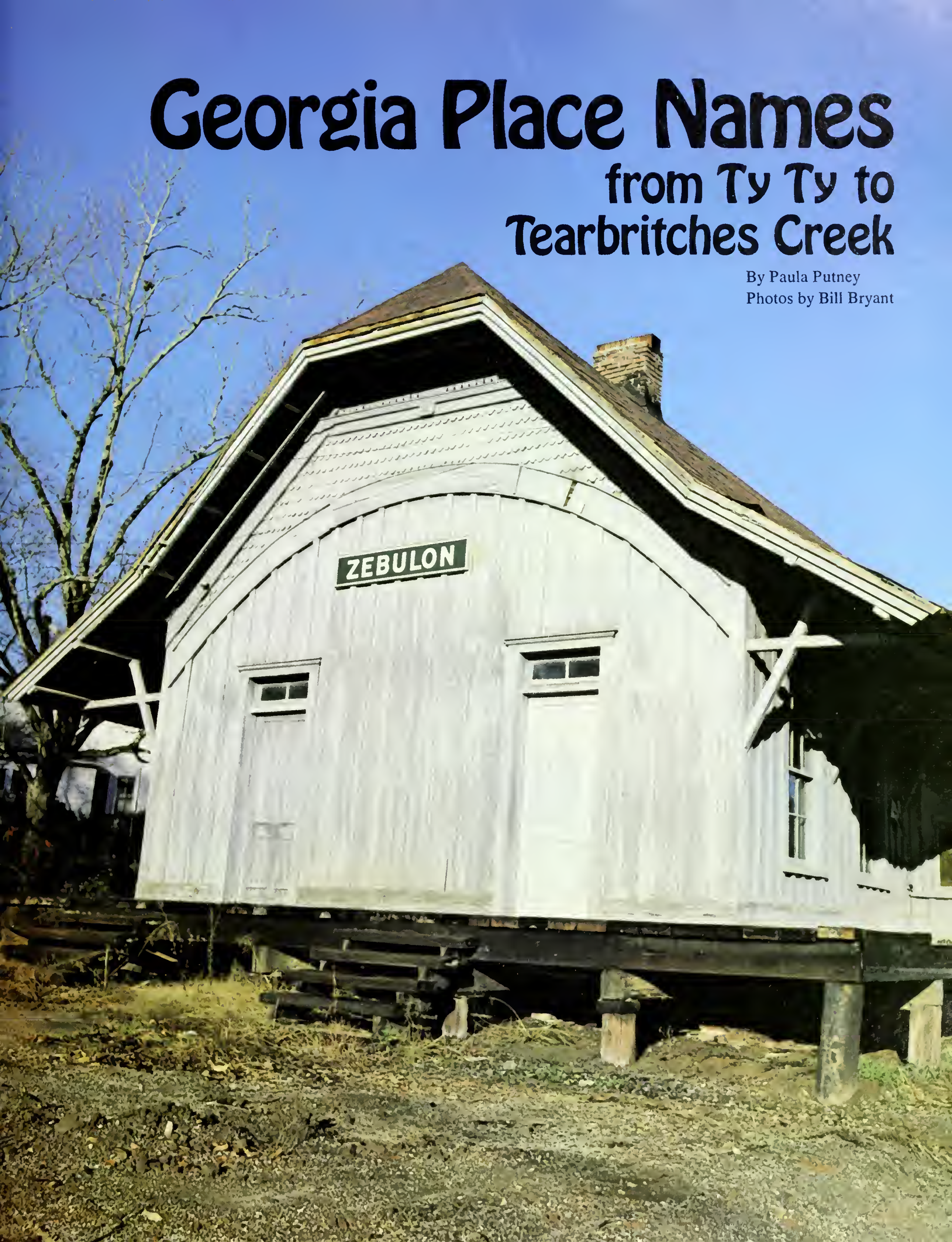
A permit is not needed for a campfire. However, if your campfire spreads and develops into a wildfire, you are held liable for the damage it causes. Build your fire away from overhanging branches. Bare the ground to mineral earth and place stones around the fire. When you leave your campsite remove any traces of your presence by scattering the stones and covering ashes. Make sure your campfire is "dead out." Better yet, use a small backpacker's stove to prepare your meals.

HUNTING AND FISHING

Hunting and fishing in the national forests are allowed under state of Georgia regulations. The appropriate permits and licenses should be obtained from the Georgia Department of Natural Resources, Game and Fish Division. Many trails are within Wildfire Management Areas where carrying firearms is prohibited except during hunting season. A check with the Georgia Game and Fish Division on hunting regulations and season dates may relieve an apprehensive hiker. The address is Game and Fish Division, Georgia Department of Natural Resources, 270 Washington St., SW, Atlanta, GA 30334, Telephone 404/656-3530.

Georgia Place Names
from Ty Ty to Tearbritches Creek

By Paula Putney
Photos by Bill Bryant



The map of Georgia is dotted with intriguing names of waterways, mountains and towns that pique one's curiosity about the circumstances of their origin. A study of Georgia's placenames takes us back into history to days before the settler, when only Creeks and Cherokees inhabited the territory which was to become the royal colony of Georgia; to the mid 1500s when DeSoto's party traveled north from Florida; to the 1770s when William Bartram traveled the length of the state and recorded his detailed observations; to days when the first surveyors followed a well-traveled network of Indian country trails to map the territory. From these sources and many others we can compile a history of Georgia placenames, of Indians and settlers and events which have left their indelible marks.

Georgia abounds in Indian names which lend a special flavor to any inventory of our placenames. Some names represent Anglicized "tamperings" with the original Cherokee or Creek words, particularly with word endings, because some Indian names were impossible for settlers to pronounce. As a result, many Indian names were subjected to a series of changes which included an eventual change in spelling. Other Indian names have been retained by means of literal translation into their English counterparts. A look at one example illustrates both instances.

The Cherokee Hiwassee, meaning "grassy meadow or canebrake," designates not only a river, but one of Georgia's oldest settlements, as well as a famous Indian trail. The Hiwassee Trail was an important "road" running west from an intersection or fork called the Dividings, located today at Clayton in Rabun County. It was the way over the Blue Ridge to Cherokee in upper Georgia, North Carolina and Tennessee. The settlement of Hiawassee (always spelled with the *a*, unlike the river, trail, gap, etc.) is recorded as early as the journal of DeSoto's travels in 1540. Spellings of Indian names on old charts and maps indicate that originally this name appeared as Iwassee, but it was a common practice to add the voiceless initial *h* to Indian words beginning with vowels. Thus, Georgia placenames such as Hiwassee which still retain this initial *h*, though no longer voiceless, are somewhat unique. The English equivalent of Hiwassee is, of course, savannah, a familiar name applied to a city, a district and a large geographical area where reed cane grew in abundance.

A single oak tree at Lone Oak stands as a possible trail marker for travelers to Alabama settlements.

Etowah, a much older Indian name, dates from a settlement in the Etowah Valley between 1000 and 1650 A.D. The English counterpart of Etowah is Hightower, which explains why the Etowah River becomes Hightower Creek in Towns County. Names such as Withlacoochee and Willacoochee (both meaning little big water), Amicalola (tumbling water), Okefenokee (trembling earth), Chattooga, Echeconnee (deer trap), Tobesofkee and Chattahoochee (river of flowered stones) are but a fraction of the list we attribute to Georgia's first settlers.

Indian personal names are also an interesting source of placenames. Indians often utilized insect names as personal names. Thus, Yahoola Creek, meaning doodle bug, got its name from a Cherokee who lived there. Doctortown, one of the few Creek town sites which has retained its original name, stems from a Lower Creek chief named Alleck, meaning "doctor." War titles also served as names for individuals. Four Killer Creek is no doubt so named because the Indian who resided there had killed four warriors. Such names as Six Killer, Whitemankiller and Scalp reflect the days of Cherokee belligerence. Rising Fawn, Young Deer, Drowning Bear and Buzzard Flopper are among many others who have left their imprint, though the record of their deeds is long lost.

Indians also had a tendency to name places for their resources. Ossabaw, one of a half dozen of Georgia's oldest names since it is recorded in DeSoto's journal, is a Guale Indian word meaning "place of holly bushes." The dried leaves of the yupon holly were used for making a famous black drink used on ceremonial occasions. Walnut Creek was originally named, not for an abundance of groves, but for an Indian word, a tongue twister for settlers, which refers to the valuable salt grass which grows there and which the Creeks used medicinally.

Two other intriguing Indian names are Warwoman Creek and Ball Ground. Indian custom included taking one woman along on war parties to do the cooking. Whether the Warwoman appellation stems from a designated social position, or whether one such woman proved herself in battle is pure speculation. The origin of the name Ball Ground, however, is not pure speculation. The Cherokees enjoyed playing a game much like lacrosse, an activity second only to war as a manly occupation. The game included a number of rituals which required, among other things, flat ground next to a stream, since the players had to plunge seven times into a stream before the game began. Thus, both Ball Play Creek and Ball Ground exist as unique Georgia placenames.

When Erskine Caldwell chose Ty Ty as the name for his patriarch in *God's Little Acre,* he was drawing from a word used even in colonial times in Georgia for a kind of stream, swamp, or thicket. The name comes from two members of the *Cyrilla* family, a shrub indigenous to pineland coastal regions which grows as thickets. The name, whether Indian or African in origin, is probably derived from the meaning, "tight eye," designating a thick place that is hard to see through. The name Gardi, a creekswamp near a town by the same name, almost certainly derived its name because people had to guard their eyes from thorny limbs when crossing it.

The roster of Indian placenames is fascinating and lengthy, but our first settlers were not the only colorful influence in naming Georgia's localities. A second influence is found in association with Biblical and foreign names. The early colonists with strong religious tendencies and a familiarity with the "old world" followed a natural inclination in affixing comfortable old names to their new surroundings. Thus, Mars Hill, Plains of Dura, Mt. Tabor, Mt. Zion, Damascus, Ephesus, Corinth, Calvary, Shiloh, Sardis and Smyrna lead an untroubled existence alongside their neighbors. No less out of place are names which evoke associations with family roots or faraway places. Athens, Rome, Cairo and Vienna join a host of towns like Bristol, Dublin, Oxford and Berlin in this category. There are also names which are associated with historical events. Bloody Marsh on St. Simon's Island is so named for the occasion when a band of Oglethorpe's men drove off a Spanish attack. Bloody Branch Creek commemorates the site of the only Indian massacre in Georgia, and Ghost Hole Ford was the scene of a stagecoach holdup in which the driver was shot. Reportedly, it is the ghost of this hapless fellow that haunts the place still.

Several other categories of placenames involve combinations of words such as "beaver." Georgia has about forty waterways with the beaver label: Beaver Creek, Beaver Fork, Beaver Ruin, Beaver Run, Beaverdam and so on. Similarly, there is a large group of names associated with hell or the devil, which seem to reflect the perspectives of the river boatmen who were chiefly responsible for their names: Devil's Half Acre, Devil's Elbow, Little Hell Landing, Hell's Shoals, Devil's Hopper, Devil's Den Creek, Big Hell Sluice, Devil's Trash Pile, and Devil's Drag Out, to name a few. Another interesting group is referred to as the "Poor Robin Places." Three streams designated as Tobler Creeks, which run east and west of each other, were linked by an Indian Trail

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called Toms Path, which connected with a fourth stream now known as Jobleys Creek. Early records suggest that William Tobler, who was the chief resident there, was engaged in illicit liquor traffic. Although the origin of the name has been lost, all of the Poor Robin localities occur along a common line across the state where possible clandestine crossings are plentiful.

Less interesting placenames are those associated with economic activity and names which are railroad designations. This group includes Lumber City, Pecan City, Rockmart, Cement, Cedartown, Cotton, Iron City, Mineral Bluff, Orchard Hill, Radium Springs and Walnut Grove. Railroad names such as Cenchat, Elko, Arco and Arcola are even more prosaic.

Fortunately, however, a look at Georgia's placenames from a geographical or topographical standpoint sends us back to our more imaginative settlers. Spoil Cane Creek, which coincided with the Unicoi Road, lies in an area which was heavily traveled. Access to cane for grazing was important to early travelers. One surveyor indicated the name as "Spoil'd Cane," suggesting that the area had been overgrazed and the name thus served as a warning that travelers should not expect too much. Pine Log Creek and Pine Log Town, an important Cherokee settlement, are actually translated Indian expressions which mean "pine footlog place." Simply, the name describes a crossing on a creek. Stumps and logs were often used as markers on wilderness trails, and many old maps indicate spots such as Chopped Oak, Skinned Chestnut and Burnt Hickory. Likewise, names such as Rocky Creek, Rocky Face and Pine Mountain explain themselves.

Perhaps the most interesting group is one we call the "Poor Mouthing" placenames. In these names we can clearly appreciate the flavor of backwoods figures of speech. A large number of streams obviously required hard work and some risk to cross. The names themselves are generally very old and appear on some of the first maps and plats. Such locations are Bad and Worse Creeks, Troublesome and Trouble Creeks, Tearbritches Creek, Rough Creek, The Bad Prong of Ten-Mile Creek, Hardscrabble Road, Pulltight Hollow, Lickskillet, No Man's Friend Pond, Lordamercy Cove, Hardship Creek, and Useless Bay get down to the hard facts and mince no words. Similarly, there are a large group of "hungry" names. "Blue John," a pioneer expression for skimmed milk, turns up as Blue John Creek. There is both Buttermilk Sound and Shoals. A further look turns up Poor Joe Branch, Cracker's Neck, Scrougetown, Scuffletown, Mangy Branch, Needy Creek, Big and Little Scarce Corn Creeks, and Hard Labor Creek, actually an Indian name. To this interesting catalogue we can add Flint Hill, Rye Patch, Briar Patch, Frog Pond, Dog Fennell and Pebble Hill. Admittedly, names like Dismal Knob, Dismal Gap and Dismal Cove are not likely to attract many newcomers.

The opposite side of the coin is found in names which express pure optimism, since not all settlers were pessimists. The list of cheerful locations is as long as those which bemoan and disparage. Sweet Home, A-1, Ideal, New Hope, Prosperity, Cornucopia, Magnet, Eureka, Excelsior, Zenith, Fancy Hill and Paradise represent a sample of happier locations.

A total of 37 Georgia counties bear the names of the state's chief executives, from Oglethorpe to the more recent Harris and Walker. At least an additional 20 counties bear the names of famous American patriots, presidents and heroes of the Confederacy. But the odd assortment of instances in which there are both towns and counties by the same name, but in which these towns are not located in the counties bearing their names, can boggle the mind. For instance, Towns is in Telfair County, Monroe in Walton County and Forsyth in Monroe County, while Macon is in Bibb County and Oglethorpe is in Macon County. Then we have Bartow in Jefferson County, Decatur in DeKalb County and Washington in Wilkes County, while Jefferson is in Jackson County and Jackson is in Butts County. The list is endless.

Curiously enough, once a geographical location acquires a name, it takes on a kind of immortality. The spelling and even the pronunciation may change over a period of years, but seldom the name itself. A need for making changes occurs in only a minute percentage of placenames. Early settlers faced with the Indian name Thlathlothlakuphka, or Rotten Fish River, wisely adopted the Spanish alternate, Santa Maria, which later became St. Mary's. In the instance of personal placenames, however, it is possible for the individual to fall from grace, as in the case of John Randolph, for whom Randolph County was named. In 1812 the name was changed to Jasper County because the citizens disagreed with Randolph's policies. However, the name was later restored when the incident was forgotten and the name Jasper was given to another county. In the case of a community called Hard Money, the citizens switched to Weston as being a name with fewer disparaging connotations. In some instances, names have undergone change by shortening the original. Okeewalkee has become "Walkee," natives generally refer to the Ohoopee as the "Hoopee," and the Ichawaynochaway is commonly referred to as the "Nochaway." These abbreviations immediately label the "outsider" who uses the longer form.

A creek now known as Stocking Branch was originally Stalkinghead, from a practice common to hunters who camouflaged themselves while stalking their prey. The original name lost its meaning for later inhabitants of the area. Only the names of two Georgia towns have suffered real change: Harmony Grove has become Commerce and Jug Tavern is now Winder. But of the few communities whose names have undergone change, Atlanta holds a record of sorts. Today's Atlanta was first known colloquially as Terminus, then Marthasville and finally, in 1845, as Atlanta. ●

This article is based on **The Essays of John Goff** as reprinted in **Placenames of Georgia**, edited by Utley and Hemperley.

OPOSSUM

By Robert W. Herres
Art by Linda Howard

Seemingly frozen by the headlights of an advancing automobile, the opossum you see at night is a mammal virtually unchanged from prehistoric times. A lowly 'possum probably hid from dinosaurs long before rain was predicted at Noah's place.

The opossum is the only marsupial in North America. Marsupials (mammals with pouches) were once the most numerous mammals but now are located only in Australia and South America with but one species, *Didelphis virginiana*, being found in North America. In Australia the kangaroo, koala bear and wombat are some of the better known marsupials. In South America a diverse variety of opossums live.

Roughly the size of a house cat, the Virginia or common opossum is ratlike in appearance. While sometimes appearing as practically white, his color often varies. A black-tipped underfur shows through and gives the animal an unkempt appearance. He often looks as though he needs a good course in personal grooming.

His head and cheeks are whitish and his ears are black with white tips. The prehensile tail is long and hairless. Like all animals with prehensile tales the opossum finds many uses for his tail. He can carry objects with his tail, and it also aids in supporting his weight if he fears being shaken out of a tree. The tail is often dark at the roots and whiter toward the tip.

The opossum has short legs and doesn't run very fast—he sort of waddles. His tracks are sharply defined as opposing thumb-like toes on his hind feet make them look like little handprints.

A shy, furtive animal who typically does not fight, an opossum makes a hissing sound. He has 50 teeth (more than any other mammal in Georgia) but is not aggressive so he "plays 'possum."

The opossum, when threatened, can't run, doesn't fight and so his method of survival is to play dead. He shuts his eyes, his tongue hangs out of his mouth and he remains motionless. He can be poked at or turned over but will not give away his act.

Scientists have long debated whether when the animal is feigning death he is just faking or if fright has produced a catatonic trance. In 1968 an electroencephalograph (EEG) was connected to an animal. The brain wave tracings during the trance-like period were substantially the same as those recorded when the animal was awake and alert. From this evidence the California biologists concluded that the opossum is shamming. Other scientists are still not convinced.

An opossum is most active at night and won't be seen during the day unless his burrow has been disturbed. Besides being nocturnal he is arboreal but can often be seen quite a distance from trees.

Hibernating is not the nature of this animal, but he will remain in a nest during the worst of a winter storm. Hunger sends him in search of food. His tail and ears are subject to frostbite and he may lose a portion of them during extremely frigid weather.

A scavenger, his diet consists of practically everything. He eats both animal and vegetable food and seems to be especially fond of berries.

The opossum ranges over all of the eastern half of the United States and is also found along the Pacific coast. He seems to be extending his range northward.

In Georgia he is found statewide. The Virginia opossum is seen in the mountains and Piedmont areas, and a slightly smaller and darker type is found on the coastal plain. The smaller opossum ranges on down through Florida.

The opossum stays within a 40 acre area. He lives in the country, the suburbs and in city areas.

The opossum nests in swamps, fields or open woods with water nearby. He lives in hollow trees and will burrow in the ground.

In Georgia there are two breeding periods—one from January to March and the other from April to June. Farther north only one litter a year is born.

The female opossum has the shortest gestation period (12 to 13 days) of any North American mammal. When the young are born, the mother wets down a path to the marsupian (pouch) with her tongue. Newborn too weak or too poorly developed to make the trip will perish. They are really little more than embryos, being naked, blind and deaf at birth. It will be about 60 days before their eyes open.

In the pouch they attach themselves to a teat and stay put. Since mother is engineered with 13 feeding stations, all above that number die. With litter size being from 6 to 18, those born late have a slim chance for survival.

In two months the young start to leave the pouch. They hitch a ride on mother's body but return to the pouch to feed or for safety. Three months after birth the litter starts to scatter and the young are fully mature in a year.

Predators take their toll but the greatest enemy is man. Opossums are taken for food, which is somewhat like pork, or fur which is usable but not of top quality.

The most significant fact about this relatively harmless animal is its ability to exist with little change. No beauty contest winner, the opossum is as interesting as any of God's creatures. ●

Robert Herres is an associate professor at West Chester State College in Pennsylvania as well as a freelance writer.

Painting courtesy Mrs. Neal Irby, Atlanta.

focus:

Georgia's Protected Species

Eastern Brown Pelican

By Mary Anne Neville-Young
Biologist, Game and Fish Division

Soaring only inches above the water, brown pelicans appear as primitive as Pterodactyls. These fascinating birds are an integral part of the beach and harbor scenery along Georgia's coast. Although Georgians may take this species for granted, the eastern brown pelican is struggling for survival in much of its former range. Original populations have been totally eliminated from the Gulf states where, ironically, the brown pelican is the state bird of Louisiana. The saga of the brown pelican has become a classic. It demonstrates how a wildlife species can be a barometer of environmental conditions.

The eastern brown pelican is scientifically known as *Pelecanus occidentalis carolinensis*. It is a native of marine environments, though seldom venturing far out to sea. The eastern brown pelican is migratory and is found as far south as the coasts of Colombia and Venezuela. This species is one of eight species of pelican found in the world. Two of them are found in the United States, the brown pelican and its larger, more western relative, the white pelican.

Pelicans are an unusual family of birds. Their most characteristic trait is their pouch composed of skin and located under the bill, the pouch serving as a container for the bird's catches. All species of pelican have webbed feet, making them proficient swimmers, but the eastern brown pelican is the only species with the interesting habit of diving directly into the water after its catch.

Adult pelicans are brown with white on the head and neck; pouches of the adults are dark grey. The bill is yellow with a red tip. Pelicans average 4,000 grams (8.8 pounds) in weight and exhibit a formidable wingspan of 2 meters (6.2 feet). In mature birds, sexes are alike; however young birds can be distinguished from adults by a more uniform brown color. Young pelicans are also more vocal than adults, emitting characteristic squealing and grunting noises. Pelicans do not breed until three years of age. Mating occurs on offshore islands from late winter to late summer. The nest usually consists of three eggs.

The historic breeding range of the brown pelican has been greatly reduced. Breeding populations are presently found along the Atlantic Coast from North Carolina to Florida. (Georgia has no present-day reports of nest sites, however.) The species' former breeding range included eastern Mexico, Texas, Louisiana and Florida extending up through the coasts of the Carolinas. Texas has a remnant population at present, but the state of Louisiana has lost its original breeding population entirely. Most pelican populations are considered unstable, with the exception of those in Florida. There, its population appears to number over 20,000. To assess the species numbers in Georgia, aerial surveys are conducted on the coast in the winter and summer by the Dept. of Natural Resources, Game and Fish Division.

The decline of the brown pelican was first noted in the1930s in Louisiana. It was recognized that food shortages or lack of proper nesting sites alone could not account for the diminishing population. Other severe population declines and reproductive failures were reported from other parts of the country following Louisiana's observations.

What has pushed the brown pelican so close to extinction? As is the case with most endangered species, several factors are at work. However a main culprit was identified in the near demise of the pelican: DDT.

DDT belongs to a group of chemicals known as chlorinated hydrocarbons. These compounds have primarily been used to control insect pests. Since DDT was inexpensive and did not decompose, many applications were unnecessary, making the chemical highly desirable. Un-

fortunately it was this very character of non-biodegradability which accounted for the havoc DDT and similar compounds brought to the environment.

DDT metabolizes into DDE; this, like other chlorinated hydrocarbons, stays in biological systems by storing in fatty tissues. As predators consume prey, the amount of DDE increases by a process known as biological amplification, until species at the top of the food pyramid receive the largest doses. Since the brown pelican is a fish-eater, it is at the top of the food chain.

The most obvious effects of chronic pesticide poisoning seen is lack of nesting success. The pesticides interfere with calcium metabolism, and eggs are laid with soft, or malformed shells, making them subject to breakage and predation.

Top carnivores, like the brown pelican, represent non-target species which suffer from accumulations of pesticides contaminating estuarine and oceanic systems. High levels of these persistent compounds exist especially in the Gulf states. Residues from direct application in these areas are augmented by those received via the Mississippi from the Midwest. This concentration of pesticides accounts for the near demise of the pelican in Texas in the 1950s and '60s and its virtual extirpation from Louisiana.

The brown pelican is classified as an endangered species in both the Federal Endangered Species List and the state of Georgia's Protected Species List. For each species of wildlife listed as federally endangered, the U.S. Fish and Wildlife Service appoints a recovery team. This group assists the Service in planning recovery efforts for the species. The plan for the eastern brown pelican is presently directed at preventing the extirpation of the bird in any significant portion of its historic range. To accomplish this, the historic range needs to be identified, as do ideal nesting locations. Restocking pelicans in areas within their historic range has already been attempted.

During the period 1968 to 1970, Florida pelicans were reintroduced into Louisiana. The birds suffered about 40 percent losses. These were due to the heavy pesticide contaminations in the Gulf. Obviously, for any recovery involving transplants to work, levels of DDT and DDE would need to be carefully monitored. California has successfully stabilized its pelican populations by lowering pesticide levels. The recovery team recognizes other limiting factors in the pelican's population declines. These include the general lowering of water quality which results in reduced visibility of prey species, oil spills, vandalism and unnatural predations such as those by dogs or accidents from fishing lines. To successfully stabilize eastern and Gulf populations, all the limiting factors will have to be dealt with. But the effect of pesticides on the species is the factor that man needs to deal with intimately.

Being a non-target species like the brown pelican, man often does not recognize danger unless confronted with it in a dramatic form. Environmental contaminants may work in subtle ways; when wildlife species suffer the consequences of these stresses, they are sounding alerts that should be heeded. Efforts going into the recovery of the brown pelican will serve to improve our own quality of life. ●

focus:

Georgia's Protected Species

Shortia

By Steve Bowling
Botanist, Game and Fish Division

Shortia, one of the most attractive of Georgia's protected plants, has perhaps the most interesting history of any of them. For nearly 90 years from its discovery in the late 1700s until it was rediscovered in the late 1800s, shortia was "lost." The story of how it was found again is one of the most famous in the history of botany.

Shortia or something very similar to present-day shortia was in existence perhaps 35 million years ago. At that time the climate was warmer and the species grew in Asia and North America as far north as the Bering Strait between Alaska and Siberia. During the period of the Ice Age between 600,000 and 12,000 years ago, shortia was forced south by the advancing ice sheet. Today it survives as a single species in a restricted area of the southern Appalachian mountains and as about ten species in Japan, China and Taiwan.

Shortia was first discovered on December 8, 1788 by André Michaux. Michaux was a French botanist employed by King Louis XVI to explore the American wilderness for plants which would be suitable to grace the gardens of Europe. Michaux had been in America for three years when he made a trip to look for the headwaters of the Savannah River. He followed one of its northeastern tributaries, the Keowee River, into South Carolina. He was nearly to its source when he found shortia. The plant was totally new to him, and he made no attempt to name it or adequately describe it. Instead he wrote in his journal that he had found "a new little shrub." Botanists describe anything woody and smaller than a tree as a "shrub." However, shortia is not woody and certainly does not resemble a shrub in the usual sense. Michaux's mistake of calling it a shrub would later create confusion in the search to find it. One thing he did, however, which was unusual for Michaux, was to give a very exact description of where he found his "new little shrub." Then Michaux left the banks of the Keowee, and shortia was not to be seen until 90 years later.

In 1839 Asa Gray, an American botanist, was in Paris to examine the pressed specimens of plants that Michaux had brought back from America. He came across the specimen of shortia that Michaux had collected 50 years before and recognized it as a totally new genus and species of plant. He named it *Shortia galacifolia, Shortia* for a prominent Kentucky botanist, Dr. Charles Short, and *galacifolia* which means "with leaves of galax."

The label on the pressed specimen that Gray saw said that it had been collected in the "high mountains of Carolina." This mistake, coupled with the one in Michaux's journal calling shortia a shrub, caused the greatest of problems in finding the plant again. Though Gray had read Michaux's journal, he made no connection between the journal's "new little shrub" with the exact location described and the pressed specimen with its misleading "high mountains of Carolina."

Gray and other botanists searched for shortia for nearly 40 years. They always looked for it on the highest mountains of North Carolina—Grandfather, Roan, Mt. Mitchell and others. Though they discovered several species of plants new to science on these trips, the shortia which Gray most hoped to find eluded them.

In the spring of 1877 shortia was rediscovered along the banks of the Catawba River by George Hyams, the 17-year-old son of a Statesville, North Carolina commercial plant collector. When Gray learned of this, he and others set off on another expedition into the high mountains at the source of the Catawba thinking that must be where Michaux found it. Again they met with failure.

Another botanist, Charles Sargent, who had been on this last expedition with Gray, read Michaux's journal in order to find the spot where he had found a tree known as Fraser's or mountain magnolia *(Magnolia fraseri).* Michaux mentioned finding this magnolia near where he

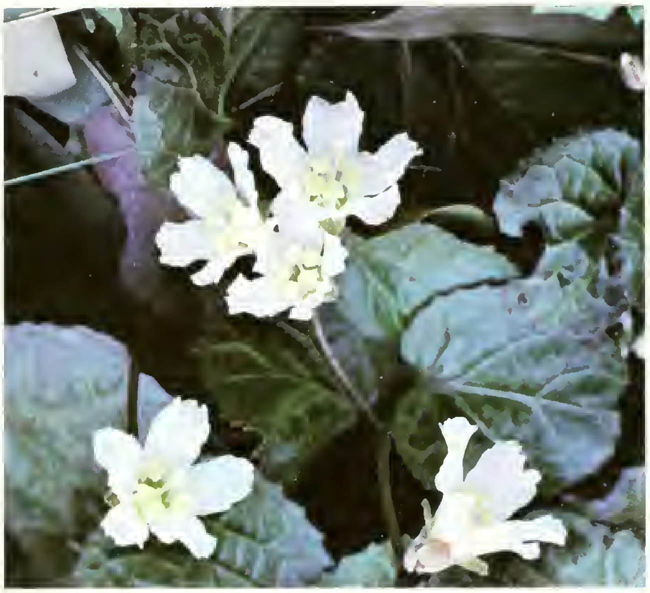
found his "new little shrub." Still not making the connection, Sargent made a trip in September of 1886 to find the magnolia. By following the journal's detailed instructions, he came back to the exact spot where Michaux had been. Here, 98 years later, Sargent found shortia exactly where Michaux had first seen it.

Shortia *(Shortia galacifolia),* also known as oconee bells, is a beautiful little plant with shining, leathery, evergreen leaves that are nearly round or slightly oblong and usually about 1½ inches across. It blooms in March and April with bell-shaped flowers that are about an inch long and across and composed of five petals with scalloped edges. White is the usual color of the petals although they are sometimes tinged with pink. The plant grows as a groundcover forming low patches (4 to 6 inches high) that may cover a fairly extensive area. Shortia grows in rich mountain woods along stream banks and in ravines usually under rhododendron and mountain laurel.

A common, very similar and closely related plant, galax *(Galax aphylla),* also known as coltsfoot or beetleweed, grows in similar habitat as shortia and is easily confused with it. It, too, has shining, leathery, evergreen leaves that are usually round but are almost always larger (2 to 4 inches across). The leaf stalk of galax is round and wiry and attached to the leaf in a distinct slit or indentation into the side. Shortia's leaf stalk is slightly flattened and grooved and attached near the edge of the leaf. Galax blooms later (May to July) and has many small (¼ inch across) white flowers forming a spike on a single stalk about a foot high.

Shortia grows in only nine counties in the mountains of North Carolina, South Carolina and Georgia. Though sometimes very abundant where found, it is rare and local in its distribution. In Georgia it has been found only in one place in Rabun County. At this location there are two small patches which, if combined, would occupy about a six foot square area. It is due to this rareness and certain other threats that shortia has been listed as endangered by the state of Georgia and has been proposed for endangered status under federal law. The greatest threats come from the damming of mounting rivers and the collection by commercial nurserymen and amateur gardeners. Though there are areas where shortia still occurs, the spot where Michaux first found it over 190 years ago is now under the waters of Lake Jocassee in South Carolina. ●

Rob Jacobs



Outdoors in Touch

edited by Susan K. Wood

NEW BOARD MEMBERS NAMED

Marvin Billups, Jr., Linda Billingsley, J. Leonard Eubanks and James H. (Herb) Butler have been appointed by Governor George Busbee to the Board of Natural Resources which sets policy for the Department of Natural Resources.

Billups, deputy director of the City of Atlanta's Bureau of Parks and Recreation, is the first black to serve on the Board. A former teacher and coach in Madison County, he has a degree in Health and Physical Education from Albany State College. Billups represents the Sixth District, succeeding James Mankin.

Linda Billingsley, appointed to the Fourth District seat, has long been active in environmental conservation. She has been a member of the Georgia Heritage Trust Commission and the U.S. Environmental Protection Agency Region IV Advisory Committee. She has also been active in efforts to preserve Soapstone Ridge in DeKalb County (See *O/G*, January 1977.) The DeKalb resident has been associated with the Georgia Conservancy, the Nature Conservancy, Atlanta Landmarks and several other conservation/preservation groups. She replaces George Dillard.

Eubanks, a lifelong resident of Mitchell County, is president and executive officer of the J. L. Eubanks Pulpwood Company. He has been a registered forester since 1951 and is a director of the Georgia Forestry Association. He is also actively involved in extensive farming interests. A resident of Pelham, Eubanks represents the Second District. He succeeds Leo T. Barber who served for eight years.

Herb Butler, named to an at-large position, is a resident of Cobb County. He is a charter member of Local 10 of the United Auto Workers, having joined in February 1948. He served in various offices of Local 10 until October 1957 when he was appointed to the UAW Region Eight staff and assigned to the Georgia area. He was appointed area director of UAW in 1971. He replaces Jim Cone.

In making the appointments, Governor Busbee commented, "The outstanding and varied credentials and backgrounds of these new appointees will bring additional strength to the Board of Natural Resources, and I am pleased that these individuals have made the necessary commitment of their time and talents to fill these important positions."

WHAT'S HAPPENING IN GEORGIA'S PARK SYSTEM

Fourth Annual Fireside Craft/Art Show
Unicoi State Park
February 17-18

The Fourth Annual Fireside Craft/Art Show will be at the Lodge and Conference Center between 10:00 a.m. and 6:00 p.m. both days. Many of the Southeast's finest craftspersons will be exhibiting and selling their work at the show. Overnight accommodations are available at Unicoi and in the nearby town of Helen. (404) 878-2201.

Turkey Hunting Workshop
Unicoi State Park
March 2-3

All turkey hunters are invited to get ready for this year's gobbler hunts by attending this special workshop. Experts will be on hand to teach and discuss hunting skills, techniques, equipment, as well as turkey management programs. Helen (404) 878-2201.

Indian Artifacts Identification Days
Etowah Mounds Historic Site
March 24-25

A professional archaeologist will be at the site to identify and give information on your artifacts. Cartersville (404) 382-2704.

Spring Orienteering
F. D. Roosevelt State Park
March 24-25

Classes for beginners will prepare participants for successful running of any of the three beginner orienteering courses to be set up. Courses for intermediate level will be held also. Pre-registration $1.00. Pine Mountain (404) 565-7092.

A NEW BOOK—GROUND WATER RESOURCES OF GEORGIA

Activities of the two state agencies holding primary responsibility for Georgia's ground water use are discussed in a new book from the Institute of Government, University of Georgia.

Ground Water Resources of Georgia is written by Dr. James E. Kundell, Institute science and technology specialist.

The book reviews the work of the Geologic and Water Resources Division (now Georgia Geological Survey) of the Department of Natural Resources in researching the ground water system in the state. It also discusses the role of the Environmental Protection Division of the DNR, the regulatory agency charged with protecting the water resource.

Dr. Delmer D. Dunn, Institute director, notes that "The book presents a complete discussion of the state's water concerns." It explains what the ground water resources of Georgia are—including twenty-one maps and illustrations outlining the locations and sizes of all Georgia's aquifers.

The problems that threaten Georgia's ground water resource are examined in detail. They include both natural and man-made contamination sources. The book also points out that reduced water quality already affects some areas of the state and discusses the specific problems of those areas.

Ground Water Resources of Georgia reviews all the state laws concerning water. It discusses, in lay terms, laws including those that regulate the drilling of wells, require permits for pollution discharges, and administer a permit system for use of ground water in excess of 100,000 gallons per day. The complete texts of major water laws are included.

Copies of *Ground Water Resources of Georgia*, 150 pages, are available for $6.00 each from the Publications Program, Institute of Government, University of Georgia, Terrell Hall, Athens 30602.

REWARD FOR BANDED GROUSE

A $5.00 reward is being offered for certain ruffed grouse in north Georgia by scientists from the University of Georgia.

Last spring and summer, a number of young grouse were banded in the web of their left wing in an effort to learn more about chick survival, movement, habitat utilization and age of these birds.

Any hunter taking grouse should examine the left wing for an aluminum band and claim his reward by sending in the band, tail and both wings with the feathers intact, along with his name, address, date and location of the kill.

The material may be sent to The Institute of Natural Resources, University of Georgia, Athens, Georgia 30602, phone (404) 542-1555, or taken to any Game Management Office of the Department of Natural Resources where the biologists will deliver the material to the university.

The reward will be sent upon verification of the band.

NEW RATES IN STATE PARKS

The rising operational costs of utilities, supplies, repairs, equipment and labor have brought about an increase in some fees charged in Georgia's state parks.

New rates, as outlined below, became effective January 1, although reservations made before November 1, 1978 at old rates will be honored. As Henry Struble, director of the Parks, Recreation and Historic Sites Division, explained, "The goal of this division is to provide camping, cottages, swimming, group shelters and all of our facilities at the least possible cost to our visitors. The cost of operating and maintaining these facilities has simply exceeded the rate we were charging for their use."

The 11-month advance reservation policy for cottages, mobile homes and group shelters will remain the same. Reservations can be made at the individual parks. The priority for accepting reservations is: reservations made in person at the park site, those made by telephone and those made by letter. The maximum number of cottages that may be reserved by one person for one period of time is two cottages. Tent and recreational vehicle campsites will continue to be available on a first come, first served basis.

For more information, contact the Parks, Recreation and Historic Sites Division at (404) 656-2770.

Facility	**Current Rate**
Cottages	
1 Bedroom	$ 18.00
Mobile Home	20.00
2 Bedroom	24.00
3 Bedroom	30.00
(Special weekly rate no longer available)	
Lodge	
1 Adult in room	15.00
2 Adults in room	18.00
3 Adults in room	20.00
4 Adults in room	22.00
5 Adults in room	24.00
6 Adults in room	26.00
Campsites	
Recreational Vehicle	4.00
Tents and Pop-up Trailers	3.50
Recreational Activities	
Swimming Pools and Beaches	.50
Miniature Golf	.50
Golf Green Fees (9 or 18)	5.00
Golf Carts	
18 Holes	8.00
9 Holes	4.00
Annual Membership	200.00 250.00
Group Shelters	
35 Capacity	15.00
80 Capacity	25.00
150 Capacity	35.00
Canoes	
1 Hour	2.00
All Day	6.00
Fishing Boats	
1 Hour	2.00
½ Day (4 hours)	4.00
All Day (8 hours)	6.00
Boat/Motor/1 Tank Gas (S.C. Foster Only)	
4 Hours	10.00
8 Hours	16.00
Dream Boats	
½ Hour	.75
Group Camps	**$1.00/Person/Day**
Will-A-Way Group Camp for the Handicapped	**$4.25/Person/Day**